

# WEST Search History

DATE: Friday, November 21, 2003

<u>Set Name</u>	<u>Query</u>	<u>Hit Count</u>	<u>Set Name</u>
			result set
<i>DB=USPT,PGPB,JPAB,EPAB,DWPI,TDBD; PLUR=YES; OP=OR</i>			
L25	l12 and L24	0	L25
L24	unreachable and l21	2	L24
L23	l3 and l21	0	L23
L22	subset\$1 and L21 and l4	0	L22
L21	thread\$1 and sampled and lifetime and statistic\$1 and object\$1	62	L21
L20	L14 and L19	1	L20
L19	L9 and L18	1	L19
L18	L4 and L13	204	L18
L17	L3 and L14	1	L17
L16	L3 and l14L15	0	L16
L15	l3L14	0	L15
L14	L12 and L13	1	L14
L13	((707/206)!.CCLS.))	383	L13
L12	L9 and L4 and L2	2	L12
<i>DB=USPT; PLUR=YES; OP=OR</i>			
L11	L1 and L10	1	L11
L10	L4 and L9	2	L10
L9	pretenur\$3	2	L9
L8	L1 and L7	0	L8
L7	L5 and L6	6	L7
L6	object adj lifetime\$1	63	L6
L5	L3 and L4	76	L5
L4	garbage adj collect\$3	1544	L4
L3	(tenuring or promotion) and L2	126	L3
L2	memory adj management	7119	L2
L1	((711/170 711/171 711/172 711/173 711/200 711/201 711/202 711/203 711/204 711/205 711/206 711/207 711/208 711/209)!.CCLS.))	3787	L1

END OF SEARCH HISTORY

Generate Collection 

L24: Entry 1 of 2

File: PGPB

Feb 14, 2002

PGPUB-DOCUMENT-NUMBER: 20020019716

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20020019716 A1

TITLE: Object sampling technique for runtime observations of representative instances thereof

PUBLICATION-DATE: February 14, 2002

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Agesen, Ole	Palo Alto	CA	US	
Garthwaite, Alexander T.	Beverly	MA	US	
Harris, Timothy L.	Cambridge		GB	

## ASSIGNEE-INFORMATION:

NAME	CITY	STATE	COUNTRY	TYPE CODE
Sun Microsystems, Inc.				02

APPL-NO: 09/ 855454 [PALM]

DATE FILED: May 15, 2001

## RELATED-US-APPL-DATA:

Application is a non-provisional-of-provisional application 60/204455, filed May 16, 2000,

INT-CL: [07] G06 F 19/00, G01 N 37/00

US-CL-PUBLISHED: 702/83

US-CL-CURRENT: 702/83

REPRESENTATIVE-FIGURES: 1A

## ABSTRACT:

With better knowledge of the behavior of objects in a running application, it is possible to improve execution environment decisions that affect management of such objects. For example, if available, object lifetime statistics could be employed in decisions that affect how and where objects are placed, e.g., on allocation or during operation of automatic dynamic memory management facilities such as a garbage collector. Typically, instrumenting all objects to sample lifetimes or other characteristics would impose an impractical level of overhead. We present a technique for dynamic sampling of a subset of allocated objects that incurs low runtime overheads. Coupled with automatic memory management or collection facilities, this technique allows us to improve the efficiency of a collector by segregating objects, sampled and non-sampled alike, based on observed characteristics such as object lifetime. The sampling techniques facilitate tracking of many kinds of object information. For purposes of illustration, an exemplary implementation is described in which such sampling techniques are exploited to improve performance of generational garbage collectors.

## CROSS-REFERENCE TO RELATED APPLICATION(S)

[0001] This application claims benefit of U.S. Provisional Application No. 60/204,455, filed May 16, 2000.

[0002] In addition, this application is related to U.S. Patent Application No. <not yet assigned, atty. docket no.: 004-5117>, entitled "DYNAMIC ADAPTIVE TENURING OF OBJECTS,"

naming Agesen, Garthwaite and Harris as inventors and filed on [redacted] date herewith, the entirety of which is hereby incorporated by reference.

## End of Result Set

 Generate Collection 

L24: Entry 2 of 2

File: PGPB

Nov 22, 2001

PGPUB-DOCUMENT-NUMBER: 20010044856

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20010044856 A1

TITLE: Dynamic adaptive tenuring of objects

PUBLICATION-DATE: November 22, 2001

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
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Harris, Timothy L.	Cambrigde		GB	

## ASSIGNEE-INFORMATION:

NAME	CITY	STATE	COUNTRY	TYPE CODE
Sun Microsystems, Inc.				02

APPL-NO: 09/ 855453 [PALM]

DATE FILED: May 15, 2001

## RELATED-US-APPL-DATA:

Application is a non-provisional-of-provisional application 60/204454, filed May 16, 2000,

INT-CL: [07] G06 F 9/44

US-CL-PUBLISHED: 709/315

US-CL-CURRENT: 709/315

REPRESENTATIVE-FIGURES: 3

## ABSTRACT:

Run time sampling techniques have been developed whereby representative object lifetime statistics may be obtained and employed to adaptively affect tenuring decisions, memory object promotion and/or storage location selection. In some realizations, object allocation functionality is dynamically varied to achieve desired behavior on an object category-by-category basis. In some realizations, phase behavior affects sampling lifetimes e.g., for objects allocated at different phases of program execution, and the dynamic facilities described herein provide phase-specific adaptation tenuring decisions, memory object promotion and/or storage location selection. In some realizations, reversal of such decisions is provided.

## CROSS-REFERENCE TO RELATED APPLICATION(S)

[0001] This application claims benefit of U.S. Provisional Application No. 60/204,454, filed May 16, 2000.

[0002] In addition, this application is related to U.S. patent application No. , entitled "OBJECT SAMPLING TECHNIQUE FOR RUNTIME OBSERVATIONS OF REPRESENTATIVE INSTANCES THEREOF," naming Agesen, Garthwaite and Harris as inventors and filed on even date herewith, the entirety of which is hereby incorporated by reference.